



1317 F Street NW
Suite 600
Washington, DC 20004
Phone: 202-745-6331
Fax: 202-783-0329
www.competecoalition.com

**RTO and ISO Markets are Essential to Meeting Our Nation's
Economic, Energy and Environmental Challenges**

October 6, 2010

Executive Summary

Our nation faces significant economic, energy and environmental challenges. The organized electricity markets operated by the Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs) have proven themselves to be the most economically efficient structure to ensure an adequate and reliable supply of affordable, diverse and increasingly clean electricity to meet the nation's current and future energy and environmental needs. RTOs and ISOs are delivering benefits today in the following areas:

Prices to Consumers. The organized markets are keeping prices affordable and saving consumers billions of dollars. According to an analysis of data from the Energy Information Administration, between 1997 and 2010, retail rates in states with competitive organized markets increased at a lesser rate (42.7%) than in states outside of organized competitive markets (46%), and the rate of increase in organized markets was less than the national average (43.4%). Average wholesale prices in PJM, NYISO, and ISO-New England in 2009 declined more than 40% less from 2008 levels.

Renewable Resources. Renewable resource developers are attracted to the RTO and ISO markets because of their fair rules, large regional scope and transparent locational prices that correctly value energy. These markets provide economical balancing services for variable generation. Nearly 80% of installed wind capacity is now located in regions with organized competitive electricity markets, despite the fact that these areas represent only 44% of U.S. wind energy potential.

Demand Response Resources. Demand response resources flourish in RTO and ISO markets. Almost 32,000 MW of demand response are available in North American RTOs and ISOs. Organized wholesale markets and policies supported by FERC have facilitated new entry by curtailment service providers, which has led to product and service innovation. In addition, NERC has said that demand response resources are providing critical reliability services. Thus, the tremendous growth in consumer demand response in RTOs and ISOs contributes to improving reliability and mitigating upward price pressures.

Innovation. Innovators, such as those providing state-of-the-art storage and demand resources, are choosing to install their advanced technologies in the RTO and ISO markets because of the ease of entry, level playing field, non-discriminatory rules and transparent prices. The RTO and ISO markets are leading the way in innovation.

Smart Grid. The Smart Grid promises to transform both consumer and investor behavior, and this transformation will be most effectively realized in the RTO and ISO markets where transparent and credible price signals give consumers the information they need to make smart efficiency decisions. The organized markets will provide the most "bang for the buck" from our nation's investment in the Smart Grid.

Infrastructure Investment. An estimated \$1.5 to \$2 trillion in investment is needed over the next 20 years to replace and modernize our nation's electricity infrastructure. The RTO and ISO markets offer the best opportunity for investments to be made efficiently and reliably. RTO and ISO markets have proven attractive to generation developers, in particular wind. Perhaps most important, investors bear the risk in a market environment, thereby protecting consumers from the costs of bad business decisions and cost overruns.

Efficiency. Organized competitive markets have produced documented efficiency improvements, allowing us to squeeze more from existing resources. In RTOs and ISOs, the heat rates of coal-fired generators improved 9.4% between 1998 and 2007, and the utilization rate of nuclear plants increased from 81% to 93% between 1996 and 2007.

Market Monitoring. The RTOs and ISOs employ professional independent market monitors that add an extra level of protection for market participants not found in the monopoly markets. Participants' behavior is monitored in real time by independent analysts to ensure market power is not exercised and market rules are not violated. The monitors periodically assess market performance against metrics to assure prices are consistent with those expected in a competitive market. Market monitors regularly report that the markets are competitive.

Synergy with GHG Reduction Program. Organized competitive electricity markets provide the accurate, transparent price signals that enable better utilization of the most cost-effective, efficient, and environmentally friendly resources. The ultimate goal of pricing carbon is to foster a fundamental change in both investor and consumer behavior, and this goal can be attained most efficiently if the supply and demand of both electricity and CO2 emissions are determined by accurate, market-driven price signals.

Our nation must take aggressive action to tackle our energy challenges, and the electric power industry is uniquely situated to lead the way. The COMPETE Coalition is dedicated to ensuring that policymakers at all levels recognize that well-structured organized electricity markets are essential. The RTOs and ISOs are providing the level playing field, renewable generation, demand resources, customer tools and efficient markets that are proving to be essential in achieving these goals and holding down costs to consumers along the way.



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RTO and ISO Markets are Essential to Meeting Our Nation's Economic, Energy and Environmental Challenges

Our nation faces significant economic, energy and environmental challenges. To meet them head on requires substantial investment in our energy infrastructure, reducing our dependence on foreign supplies, using energy more wisely and efficiently, and limiting emissions of carbon dioxide and other greenhouse gases. The electric power industry, the largest backbone industry in the country, is in a unique position to lead the way in meeting these challenges.

Against this backdrop of historic challenges, the organized competitive electricity markets operated by the Regional Transmission Organizations (RTOs) and Independent System Operators (ISOs) are more important than ever. The organized markets¹ are the best way to assure an affordable, efficient and adequate supply of electricity and to meet the nation's current and future energy and environmental needs. They provide the tools that foster efficient investment and the products and services consumers want. The organized markets provide a level playing field for all resources, foster renewable and demand response resources, enable innovation, attract infrastructure investment in the right places, create efficiencies, and provide a superior platform for cap-and-trade and smart grid benefits.

Prices to Consumers

"7-Eleven Inc. continues to realize utility cost savings and cost avoidances by participating in competitive electricity markets. Informed energy decisions in deregulated markets help mitigate SEI costs and help drive the implementation of more energy-effective store equipment."

MARK MORGAN, 7-ELEVEN INC.

The organized markets are keeping prices affordable and saving consumers billions of dollars. According to an analysis of data from the Energy Information Administration, between 1997 and 2010, retail rates in states with competitive organized markets increased at a lesser rate (42.7%) than in states outside of organized competitive markets (46%), and the rate of increase in organized markets was less than the national average (43.4%). When adjusted for inflation, commercial rates in states with RTOs or ISOs actually decreased over this period while those rates increased in the states outside of organized competitive markets.²

¹ Appendix 1 sets forth the key features of organized markets.

² See Appendix 2, 1997 - 2010 EIA data.

Energy prices in the organized markets continue to decrease. Consider these results for 2009:

- NYISO: the average price in 2009, the lowest in its 10-year history, was 49% lower than in 2008.³
- ISO New England: the total cost of electric energy fell 50% in 2009⁴ to a new lowest average price.⁵
- PJM: average prices in the day-ahead and real-time energy markets fell more than 44% in 2009.⁶
- MISO: prices in the energy markets declined about 45%.⁷
- CAISO: total estimated wholesale costs for serving system load dropped from \$53/mwh to \$38/mwh,⁸ a 28% decrease.
- SPP: the annual average price fell 48%.⁹
- ERCOT: the average wholesale electricity price fell 56% to the lowest annual average price in the ERCOT wholesale market since 2002.¹⁰

³ Electric Power Daily, *NYISO Wholesale Prices Hit Lowest in 10 Years*, March 12, 2010.

⁴ ISO New England, Internal Market Monitor, *2009 Annual Markets Report*, May 18, 2010 at 1. http://www.iso-ne.com/markets/mktmonmit/rpts/other/amr09_final_051810.pdf

⁵ Electric Power Daily, *New England Wholesale Prices Tumbled in 2009*, March 2, 2010.

⁶ Monitoring Analytics, LLC, *State of the Market Report for PJM 2009*, March 10, 2010, Volume 1 at 16..
http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2009/2009-som-pjm-volume1.pdf

⁷ Potomac Economics, *2009 State of the Market Report for the Midwest ISO*, at ii.
http://www.potomaceconomics.com/uploads/midwest_documents/2009_State_of_the_Market_Report.pdf

⁸ CAISO Department of Market Monitoring, *Market Issues and Performance Annual Report*, April 2010 at 2. <http://www.caiso.com/2777/27778a322d0f0.pdf>

⁹ Southwest Power Pool, Inc., *2009 State of the Market Report* at 5.
<http://www.spp.org/publications/SPP-2009-ASOM-Report.pdf>

¹⁰ Potomac Economics, Ltd., *2009 State of the Market Report for the ERCOT Wholesale Electricity Markets*, July 2010 at i.
http://www.potomaceconomics.com/uploads/ercot_reports/2009_ERCOT_SOM_REPORT_Final.pdf

Renewable Resources

“Competitive energy markets really offer the best environment in the U.S. for the investment and development of renewable resources.”

JEFF BLADEN, GAMESA ENERGY USA

“We’re learning more ways to deliver efficiency savings to customers and shareholders. We’re striving to use 100% renewable power by looking at every possible project, biomass, wind, hydro, because the flexibility of competitive markets provides greater benefits from these sources.”

ANGELA BEEHLER, WAL-MART STORES, INC.

Renewable resource developers, like most new entrants, are attracted to the RTO and ISO markets because of their fair rules and transparent locational prices that correctly value energy and investment, and their large regional geographic reach offers many diverse resources to provide economical balancing services for variable generation. Providing deep, liquid spot markets and expanding the geographic access to those markets are effective tools for dealing with wind’s variability.¹¹

Wind resource developers in particular are attracted to the organized markets operated by RTOs and ISOs. Nearly 80% of installed wind capacity is now located in regions with organized competitive electricity markets,¹² despite the fact that these areas have only 44% of U.S. wind energy potential.¹³ Wind generating capacity located in the North American RTOs and ISOs increased 400% between 2004 and 2008, and competitive wholesale markets and investment by competitive suppliers are responsible for over 85% of new wind capacity.¹⁴ More recently, organized competitive markets have added about 4,900 megawatts (MW) of installed wind resources between 2009 and 2010. During that time, the three regions with the most wind capacity growth were all served by organized competitive electricity markets: the Reliability First Corporation (RFC), served by PJM; the U.S. portion of the Midwest Reliability Organization, served by the MISO; and SPP.¹⁵

¹¹ U.S. Department of Energy, *20% Wind Energy by 2030: Increasing Wind Energy’s Contribution to U.S. Electricity Supply*, July 2008.

¹² ISO/RTO Council, *2009 State of the Markets Report*, September 2009 at 4.
<http://www.isorto.org/atf/cf/{5B4E85C6-7EAC-40A0-8DC3-003829518EBD}/2009%20IRC%20State%20of%20Markets%20Report.pdf>

¹³ B. Kirby & M. Milligan, *Facilitating Wind Development: The Importance of Electric Industry Structure*, National Renewable Energy Laboratory (NREL), May 2008.

¹⁴ Electric Power Supply Association, *Power Facts -AWEA Report Shows Wind Energy Still on Record Pace with Competition Leading the Way*, October 28, 2008.
<http://www.epsa.org/forms/documents/DocumentFormPublic/view?id=DC350000002F>.

¹⁵ FERC Staff, *Summer 2010 Energy Market and Reliability Assessment*, May 20, 2010 at 5.
<http://www.ferc.gov/market-oversight/mkt-views/2010/05-20-10.pdf>

In PJM, there are now 2,381 MW of installed wind resources and more than 39,000 MW proposed.¹⁶ MISO's 7,500 MW of wind resources represent 5.1% of its installed generating capacity, and over one-half of MISO's generation additions are wind.¹⁷ The NYISO has added more than 1,200 MW of wind generation since 2000 with another 7,000 MW proposed.¹⁸

The American Wind Energy Association (AWEA) issued a strongly-worded resolution finding that wind development has proven easier in the RTO and ISO markets. AWEA noted that these markets provide opportunities for variable resources to sell excess energy or purchase shortages at a transparent and fair price, and that they minimize the operational impacts of variable resources by netting out aggregate load and generation over a wide region.¹⁹ These attributes were cited by MidAmerican Energy Company as a primary business justification and customer benefit for MidAmerican joining MISO in 2009.²⁰

The ability of the organized markets to successfully attract wind resources is paying dividends through lower prices. For example, substantial increases in generation from wind resources in 2009 lowered prices in MISO.²¹

Demand Response Resources

"It is no accident that some of the more innovative strategies that we have seen, in terms of using demand response as a way of avoiding the need for new peak generation, for avoiding the operation of high-emitting, low-efficiency peak generation, is happening in competitive markets. And likewise with renewable energy development."

MARK BROWNSTEIN, ENVIRONMENTAL DEFENSE FUND

Broad penetration of electricity markets by consumer demand response resources is critical to meeting our nation's energy and environmental challenges. In addition to helping

¹⁶ PJM, *Renewable Energy Dashboard*, <http://www.pjm.com/~media/about-pjm/newsroom/downloads/renewables-dashboard.ashx>

¹⁷ Potomac Economics, *2009 State of the Market Report for the Midwest ISO* at 68 and xiv.

¹⁸ NYISO press release, *NYISO Markets Spur Reliability and Innovation*, August 2, 2010. http://www.nyiso.com/public/webdocs/newsroom/press_releases/2010/NYISO_Markets_Spur_Reliability_-_Innovation_080210_-_FINAL.pdf

¹⁹ AWEA Board Resolution adopted January 9, 2008. http://www.awea.org/newsroom/pdf/AWEA_Board_Resolution_on_Wholesale_Electricity_Markets.pdf.

²⁰ According to Bill Fehrman, president of MidAmerican Energy Company, "(j)oining the Midwest ISO makes good business sense for our customers because it provides access to the ancillary services market to support our leadership position in wind generation and helps ensure the company has a wider opportunity to buy and sell electric power." MISO News Release, *MidAmerican Energy Declares Intent to Integrate Into Midwest ISO as a Transmission-owning Member*, April 27, 2009.

²¹ Potomac Economics, *2009 State of the Market Report for the Midwest ISO* at ii.

limit greenhouse gas emissions, demand response also saves money and improves reliability while providing needed “elasticity” to electricity markets.²² The North American Electric Reliability Corporation (NERC) found demand response resources are providing critical reliability services, increasing the operational flexibility of the grid and complementing the addition of new variable generation resources such as wind and solar energy.²³

RTO and ISO markets have fostered a significant increase in these important new resources. Almost 32,000 MW of demand response are available in North American ISOs and RTOs,²⁴ and most of the growth in incentive-based demand response resources has occurred in ISO/RTO markets.²⁵ The largest impacts of demand resources occur in regions with ISO/RTO programs that co-exist with utility/load serving entity programs,²⁶ and organized wholesale markets and FERC’s policy support have facilitated new entry by curtailment service providers, which has led to product and service innovation.²⁷

Demand resources in organized markets have displaced a significant amount of generation. For example, 9,282 MW of demand resource offers cleared PJM’s most recent capacity auction, which is a 32% increase from last year’s auction. Over 63% of these demand resources are in the higher-priced, transmission-limited regions.²⁸ PJM’s 9,282 MW of demand resources is equivalent to the capacity of 10 to 12 baseload power plants. In NYISO, over 2,200 MW of market-driven demand response resources have been added since 2000.²⁹ And ISO New England’s most recent capacity auction cleared over 3,200 MW of demand resources, which is a 43% increase since the first auction.³⁰

Demand response resources in organized markets are producing benefits. When two power plants in ISO New England failed during a heat wave in late June 2010, a demand

²² *Price-Responsive Retail Demand: Key to Competitive Electricity Markets*, Eric Hirst, Public Utilities Fortnightly, March 1, 2001 <http://www.pur.com/pubs/3676.cfm>.

²³ *Ten Year Outlook for Electric Reliability Highlights Environmental Initiatives, Transmission among Key Concerns*, NERC press release, October 23, 2008.

²⁴ ISO/RTO Council, *2009 State of the Markets Report* at 26.

²⁵ Peter Cappers, Charles Goldman and David Kathan, *Demand Response in U.S. Electricity Markets: Empirical Evidence*, Ernest Orlando Lawrence Berkeley National Laboratory, June 2009 at 11 and 28. <http://eetd.lbl.gov/ea/EMS/reports/lbnl-2124e.pdf>.

²⁶ FERC Staff Report, *A National Assessment of Demand Response Potential*, June 2009 at xiii. <http://www.ferc.gov/legal/staff-reports/06-09-demand-response.pdf>.

²⁷ Peter Cappers, Charles Goldman and David Kathan, *Demand Response in U.S. Electricity Markets: Empirical Evidence*, Ernest Orlando Lawrence Berkeley National Laboratory, June 2009 at 11 and 28. <http://eetd.lbl.gov/ea/EMS/reports/lbnl-2124e.pdf>.

²⁸ PJM press release, *Renewable Resources Grow in PJM’s RPM Auction*, May 14, 2010. <http://www.pjm.com/~media/about-pjm/newsroom/2010-releases/20100514-rpm-auction-results-2013-2014.ashx>

²⁹ NYISO press release, *NYISO Markets Spur Reliability and Innovation*, August 2, 2010.

³⁰ ISO New England, *Final Capacity Auction Results: Surplus Resources Available for 2013-2014*. See chart at 3. http://www.iso-ne.com/nwsiss/pr/2010/fca4_filing_release.pdf

response provider enlisted its assets and reduced demand by 380 MW.³¹ During a heat wave in July 2010, demand response providers in PJM reduced load by 2,500 MWs for three hours.³²

Innovation

“Competitive markets have provided environments that nurture and facilitate innovation, allowing companies like Beacon Power to continue pushing ahead in developing critical new technologies like flywheel energy storage.”

JUDITH JUDSON, BEACON POWER

Innovators are choosing to deploy their advanced technologies in the RTO and ISO markets. For example, Beacon Power uses cutting edge flywheel technology to store energy and provide regulation services to the bulk power grid. Beacon now has one 3 MW facility on the ISO-New England grid, is now installing one 20 MW facility on NYISO’s system, and plans to install additional 20 MW facilities on both the PJM and NYISO systems.³³ Beacon is a recipient of an Obama Administration Smart Grid grant award.³⁴ Another example is AES Storage, which uses lithium-ion battery technology to store energy and provide regulation service. AES has deployed these innovative applications on the PJM³⁵ and California ISO systems.³⁶ Also deploying battery storage technology is Viridity Energy. The firm will install a large scale battery to capture the energy from the regenerative braking systems of the trains in Philadelphia’s transit system and deploy its software optimization system to recycle the energy. The project will generate revenue for Viridity through

³¹ EnerNOC press release, *EnerNOC Responds to New England’s Largest Emergency Demand Response Dispatch to Date*, June 26, 2010. <http://www.enernoc.com/press/press-releases.php>

³² Earth2 Tech, *EnerNOC: What Heat Wave?*, July 16, 2010.

³³ Beacon Power Corp. 10-Q filing with the Securities and Exchange Commission, August 9, 2010 at 7 and 8. <http://phx.corporate-ir.net/phoenix.zhtml?c=123367&p=irol-SECText&TEXT=aHR0cDovL2lyLmludC53ZXN0bGF3YnVzaW5lc3MuY29tL2RvY3VtZW50L3YxLzAwMDExMDQ2NTktMTAtMDQzMtMzL3htbA%3d%3d>

³⁴ Beacon News Release, *U.S. Department of Energy Announces \$24 Million Smart Grid Stimulus Grant Award to Beacon Power*. <http://phx.corporate-ir.net/phoenix.zhtml?c=123367&p=irol-newsArticle&ID=1359010&highlight>.

³⁵ AES’s 1 MW battery storage in PJM is enabling a program with the University of Delaware through which PJM is evaluating the use of plug-in hybrid electric vehicles to provide regulation services to the grid. <http://www.pjm.com/about-pjm/~media/about-pjm/newsroom/downloads/phevs-and-the-grid-fact-sheet.ashx>

³⁶ AES Press Release, *AES Installs First Energy Storage System in Chile*, November 18, 2009 at 2. <http://www.aes.com/pub-sites/sites/AES/content/live/0201399ac0f501240d3ca73100796a/1033/AES%20Energy%20Storage%20A123%20Gener%2018%20NOV%2009%20FINAL%20PDF.pdf>.

participation in PJM's wholesale markets.³⁷ And finally, FirstEnergy is developing a compressed air generator that could provide between 268 MW and 2,700 MW to the PJM grid. This facility will be only the third of its kind in the world.³⁸ The RTO and ISO markets are leading the way in innovation.

Smart Grid

“Without competitive markets, the promise of ‘smart grid’ technology will remain a distant dream, since the grid can only become smarter by responding more intelligently to prices that reflect real, current costs.”

RICHARD SCHMALENSEE, MIT

The Smart Grid promises to transform the behavior of both consumers and investors, which is essential to meeting our energy and environmental challenges. This transformation will be most effectively realized in the RTO and ISO markets where transparent and credible price signals that reflect true resource costs give consumers the information they need to make smart efficiency decisions. The ease of participation in those markets by demand service providers and vendors of sophisticated tools will provide consumers greater facility to react to that information.

PJM and MISO are working together to jointly implement Smart Grid technology to improve reliability by sharing technical information to identify Smart Grid locations in their regional footprints. The grid operators will also coordinate the installation of synchrophasors to improve the operators' view of the grid. According to MISO's president, “the scale of this project will allow us to positively influence the future of the Smart Grid.”³⁹ It is also noteworthy that a recent report identified ten states that are “the laboratories for U.S. Smart Grid policy.”⁴⁰ Of the 10 states, seven participate in organized electricity markets.

³⁷ Viridity press release, September 1, 2010., <http://viridityenergy.com/viridity-energy-and-the-southeastern-pennsylvania-transportation-authority-septa-awarded-900000-from-the-state-of-pennsylvania-for-innovative-project-to-recycle-energy-produced-by-electric-public/>

³⁸ FirstEnergy News Release, *FirstEnergy Acquires Rights to Norton Energy Storage Project*, November 23, 2009. <http://www.firstenergycorp.com/NewsReleases/2009-11-23%20Norton%20Project.pdf>.

³⁹ *Midwest ISO, PJM Interconnection Collaborate on Smart Grid Project*, July 7, 2010. http://www.midwestiso.org/publish/Document/345da0_1299503ccb2_-7fb60a48324a/MISO-PJM_PMU_070710.pdf?action=download&_property=Attachment

⁴⁰ GTM Research press release, *New Report Dissects Top Ten States Driving Smart Grid Development*, July 27, 2010. The states with organized markets are: California, Massachusetts, New Jersey, New York, Ohio, Pennsylvania and Texas. http://www.smartgridnews.com/artman/uploads/1/New_Report_Dissects_Top_Ten_States_.pdf

Infrastructure Investment

It is estimated that \$1.5 to \$2 trillion in investment is required over the next 20 years to replace and modernize our nation's electricity infrastructure.⁴¹ The RTO and ISO markets offer the best platform for such capital-intensive, long-lived investments to be made efficiently and in a manner that ensures a reliable supply of electricity. Transparent electricity prices that vary by location, such as those provided through locational marginal prices ("LMPs"), signal when and where facilities are needed, and the incentives provided by the markets then attract the right type of resources at the lowest cost.

The RTO and ISO markets are attracting substantial amounts of new investment. Between 2001 and 2008, over 83,000 MW of generation capacity was added in U.S. organized markets.⁴² Over the same approximate period, almost \$26 billion in new transmission investment was made in PJM,⁴³ ISO New England,⁴⁴ and MISO⁴⁵ alone. In PJM, more than 340 MW of the new generation cleared in its most recent capacity auction are located in transmission constrained areas.⁴⁶ NYISO has attracted more than 7,600 MW of new generation since 2000, and 80 percent of it is sited in the southeastern region of the state where demand is greatest.⁴⁷

Perhaps most important, investors bear the risk in a market environment, thereby protecting consumers from the costs of bad business decisions and cost overruns. Investors that install generation in a market have no captive customers to pay for it. Investors take the risk that their investment will earn a profit, in sharp contrast with the risk borne by captive ratepayers in a monopoly-protected environment. This risk-shifting from consumers to investors is a key benefit of markets and provides significant consumer protection.

Efficiency

Organized competitive markets have produced documented efficiency improvements. In RTOs and ISOs, the heat rates of coal-fired generators improved 9.4% between 1998 and 2007, and the utilization rate of nuclear plants increased from 81% to 93% between 1996 and

⁴¹ The Brattle Group, *Transforming America's Power Industry: The Investment Challenge 2010-2030*, prepared for the Edison Foundation, November 2008, at xiv, Table 1.

⁴² ISO/RTO Council, *2009 State of the Markets Report* at 26.

⁴³ PJM New Release, *PJM Board Approves Annual Grid Upgrade Plan*, October 15, 2009. <http://www.pjm.com/~media/about-pjm/newsroom/2009-releases/20091015-pjm-board-approves-annual-grid-upgrade-plan.ashx>.

⁴⁴ ISO New England, *2009 Regional System Plan*, October 15, 2009 at 3. http://www.iso-ne.com/trans/rsp/2009/rsp09_final.pdf.

⁴⁵ MISO News Release, *Transmission Expansion Plan Receives Midwest ISO Board Approval*, December 4, 2009. <http://www.midwestiso.org/page/News?theYear=2009>.

⁴⁶ PJM press release, *Renewable Resources Grow in PJM's RPM Auction*, May 14, 2010.

⁴⁷ NYISO press release, *NYISO Markets Spur Reliability and Innovation*, August 2, 2010.

2007.⁴⁸ The competitive pressures of the market result in significant efficiency gains. Generating plants of investor-owned utilities in restructured states reduced labor and non-fuel operating expenses 3% to 5% more than those of investor-owned utilities in non-restructured states, and 6% to 12% more than plants of federal, municipal and cooperative-owned utilities that were largely insulated from restructuring incentives.”⁴⁹ Informal reviews of nuclear power plant capacity factors indicate that plants in organized competitive markets operate at higher capacity factors than reactors operated in regions with traditional vertically integrated utilities with price regulation.⁵⁰

The combination of competitive pressure and regional grid operations are producing substantial savings for consumers. For example, PJM estimates its operations save the region between \$1.5 billion and \$2.2 billion each year,⁵¹ and MISO estimates it produces between \$700 million and \$900 million in regional savings each year.⁵² And these estimates do not capture qualitative benefits such as price transparency, planning coordination, and large platforms that integrate larger quantities of renewable resources.⁵³

Market Monitoring

The RTOs and ISOs employ independent professional market monitors that add an extra level of consumer protection not found in monopoly-protected regions. In the organized markets, behavior is monitored in real time to ensure market power is not exercised and market rules are not violated. In addition, the monitors periodically assess market performance against metrics to assure prices are consistent with those expected in a competitive market.

According to the most recent annual state-of-the-market reports prepared by the market monitors, the organized markets are performing well. For example, the monitor concluded that the MISO energy markets “performed competitively in 2009.”⁵⁴ The PJM markets results were competitive, and the monitor reported that overall PJM prices are set on

⁴⁸ Navigant Consulting, *Price Signals and Greenhouse Gas Reduction in the Electricity Sector*, 2009, at 9-10.

<http://www.competecoalition.com/files/Navigant%20Study%20FINAL.pdf>.

⁴⁹ Kira R. Fabrizio, Nancy L. Rose and Catherine D. Wolfram, “Do Markets Reduce Costs? Assessing the Impact of Regulatory Restructuring on U.S. Electric Generation Efficiency,” *American Economic Review*, September 2007.

⁵⁰ Sue Wallace, Exelon Corp., October 2008, *Tomorrow’s Power*, a public forum sponsored by *The Energy Daily* <http://www.competecoalition.com/newsroom/compete-and-energy-daily-host-discussion-competition>

⁵¹ PJM, *PJM Efficiencies Offer Regional Savings*, <http://www.pjm.com/~media/documents/presentations/pjm-value-proposition.ashx>

⁵² MISO, *Bringing Value to the Heartland*, <http://www.midwestiso.org/page/Value%20Proposition>

⁵³ MISO, *Midwest ISO Issues Value Proposition for 2009*, <http://www.midwestiso.org/page/News?theYear=2009>

⁵⁴ Potomac Economics, *2009 State of the Market Report for the Midwest ISO* at ii.

average by the marginal generating units operating at or close to their marginal costs, which “is evidence of competitive behavior and competitive market outcomes.”⁵⁵ The market monitor for ISO New England reported that the outcomes of its wholesale electric power markets “were consistent with competitive markets” and that “market concentration is low, new participants seek to enter the market, and energy prices remain at levels consistent with the short-run marginal cost of production.”⁵⁶ The New York ISO’s markets “performed competitively in 2009” and the monitor found no evidence of withholding.⁵⁷

Similar results were found for the other organized markets. The CAISO’s monitor found that the overall performance of the energy markets “were highly efficient and competitive.”⁵⁸ ERCOT’s wholesale market “performed competitively in 2009, with the competitive performance measures showing a trend of increasing competitiveness” between 2005 to 2009.⁵⁹ For SPP, the monitor found an “absence of market power” as well as additional indicators that the energy market “is a competitive market.”⁶⁰

Synergy with GHG Reduction Program

“A smart cap and competitive markets for electricity add up to a huge incentive for innovation in new technologies that reduce carbon pollution.”

FRED KRUPP, ENVIRONMENTAL DEFENSE FUND

“One of the key cornerstones of our greenhouse gas reduction and sustainability initiatives is competitive power markets. Safeway could not be a leader in these efforts without restructured markets; competitive markets are critical to our business.”

GEORGE WAIDELICH, SAFEWAY

The ultimate goal of pricing carbon is to foster fundamental change in both investor and consumer behavior, resulting in the transformation of our energy economy. This goal can be attained most efficiently if the supply and demand of both electricity and CO₂ emissions are determined by accurate, market-driven price signals.

In the organized markets, prices reflect the cost of the last increment of generation needed to meet demand. As such, prices can directly show consumers the true cost of

⁵⁵ Monitoring Analytics, LLC, *State of the Market Report for PJM 2009* at 18 - 19.

⁵⁶ ISO New England, *2009 Annual Markets Report* at 1.

⁵⁷ David B. Patton, *2009 State of the Market Report New York ISO Electricity Markets*, April 2010, at 4.
http://www.potomaceconomics.com/uploads/nyiso_presentations/2009_NYISO_SOM_Final_4-30-2010.pdf

⁵⁸ CAISO Department of Market Monitoring, *Market Issues and Performance Annual Report*, April 2010 at 1.

⁵⁹ Potomac Economics, Ltd., *2009 State of the Market Report for the ERCOT Wholesale Electricity Markets* at ii

⁶⁰ Southwest Power Pool, Inc., *2009 State of the Market Report* at 1 and 7.

resources, including CO₂ emissions if they are priced into the market. With this price signal, customers' decisions regarding the cost savings from conservation or efficiency investments will be based on an accurate measure of resource cost savings, including the true value of CO₂ reductions. With monopoly regulation, the CO₂ price is averaged across the rate base, masking carbon price signals. Consumers will still pay the cost of carbon emissions, but will not receive the price signals intended to incentivize cleaner technology and practices.

Organized markets are already reducing harmful emissions. In NYISO, power plant emissions of CO₂ declined by 31% since 2000, SO₂ emissions by 82% and NO_x emissions by 62%. NYISO's system wide heat rate for fossil-fueled plants declined by 25% over this same period.⁶¹

Conclusion

Our nation is poised to take aggressive action to tackle our energy and environmental challenges, and the electric power industry is in a unique position to lead the way. COMPETE is dedicated to ensuring that policymakers at all levels recognize that well-structured competitive electricity markets are essential. We must have the same bold innovation in products and services in electricity markets that we have seen as a result of injecting competition into other formerly monopoly-protected industries. We must attract environmentally friendly resources such as wind and solar. A robust demand response in electricity markets is critical. Efficient operations that allow us to squeeze more from our existing resources are essential. Accurate and credible price signals are needed to guide both investor and consumer behavior and to capture the promise of the Smart Grid. Investments must be made efficiently and with the least risk to consumers. The RTOs and ISOs are providing the level playing field, customer tools and efficient markets that are proving to be essential in achieving these goals while holding down costs for consumers.

⁶¹ NYISO press release, *New York Power Plant Emission Rates Continue to Improve*, September 20, 2010.

[http://www.nyiso.com/public/webdocs/newsroom/press_releases/2010/NYISO - NY Power Plant Emission Rates Continue to Improve 092010 - FINAL.pdf](http://www.nyiso.com/public/webdocs/newsroom/press_releases/2010/NYISO_-_NY_Power_Plant_Emission_Rates_Continue_to_Improve_092010_-_FINAL.pdf)

Organized Market Features

The following are the key features of organized markets:

Independent administration of the markets and grid operations ensures a level playing field and provides the confidence needed to attract investment and a diverse field of market participants.

Day-ahead and real time spot markets provide transparent price signals that allow market participants to manage resources and lower costs. For example, with these transparent price signals, demand response programs allow customers to not only shift usage times and lower costs, but to aggregate their demand and become active participants in the market by providing demand response resources to the market.

Single-clearing price auctions exert downward pressure on prices and ensures that the lowest available cost resources are used.

Large regional scope assures the greatest number of competitors and the widest array of resources, thus assuring the lowest available costs. A regional scope also aligns planning and operations with the physics of electricity flows on the grid, resulting in increased reliability and efficiency.

Independent monitoring helps assure adherence to market rules and guards against improper activities by market participants. This also provides the confidence needed to attract investment. The monitors also conduct periodic assessments. that help ensure the best market rules and operations.

Retail Rate Change -- EIA / BLS Data

12-Months Ending June '10

Rate Change (1997 - 2010)
Cal '97 - June '10 (TTM)

CPI-U Inflation 35.0%

	All Sectors		Residential		Commercial		Industrial	
	Nominal	Real	Nominal	Real	Nominal	Real	Nominal	Real
RTO -- 26	42.7%	5.7%	35.7%	0.5%	31.4%	-2.7%	48.7%	10.1%
Non-RTO	46.0%	8.1%	39.0%	2.9%	38.9%	2.9%	50.1%	11.1%
National Average	43.4%	6.2%	36.3%	0.9%	33.8%	-0.9%	48.6%	10.0%

Notes:
RTO States (26) - CA, CT, DE, IL, MA, MD, ME, MI, NH, NJ, NY, OH, PA, RI, TX, IA, IN, KY, MN, MO, ND, VA, VT, WI, WV and DC

Suggested Reading

[Environmental Defense Fund and COMPETE Joint Statement and General Principles Supporting Market-Based Policies for Climate Change and Electricity](#)

[COMPETE Customer Quotes: “What People are Saying About Electricity Competition”](#)

[”Electricity Market Reform: APPA’s Journey Down the Wrong Path,” John Chandley and William Hogan, LECG](#)

[”Market Misperceptions and Regrets About Past Business Decisions,” Roy Shanker](#)

[”Price Signals and Greenhouse Gas Reduction in the Electricity Sector,” Navigant Consulting](#)

[”Embrace Electricity Competition of it’s Déjà Vu All Over Again,” The Northbridge Group](#)

[Wal-Mart Stores, Inc. before the Pennsylvania Public Utility Commissions' En Banc Third Public Hearing on “Current and Future Wholesale Electricity Markets”](#)

[Leggett & Platt, Inc. before the Pennsylvania Public Utility Commissions' En Banc Third Public Hearing on “Current and Future Wholesale Electricity Markets”](#)

[”Electricity 2.0: Unlocking the Power of the Open Energy Network \(OEN\),” NDN and New Policy Institute](#)